



NL ISO Wisselplaathouder inwendig draaien
 FR Porte-plaquette ISO tournage intérieur
 ES Portaplaquita ISO torneado interior
 DE ISO Klemmhalter innen drehen



Shank version	Clamping method	Style	Cutting direction	Cutting edge length
S Steel shank E As C with coolant hole A Steel shank with coolant hole B Steel shank with anti-vibration system D Steel shank with coolant hole and anti-vibration system C Carbide shank with steel head	D Retained from above and via bore S Retained via centre screw M Retained from above and via bore P Retained via the bore C Retained from above X Special version	90° 75° 90° 45° 60° A B C D E 90° 90° 107.5° 93° 75° F G H J K 95° 50° 63° 117.5° 75° L M N P R 45° 60° 93° 72.5° 60° S T U V W 85° Y	R L	R H L O S T P VDECM W ABK

S**32****U - D****C****L****N****R****12**

Shank Ø

d₁ mm

08
10
12
16
20
25
32
40
50
60

d₁

Tool length

l₁ mm

80	F
100	H
110	J
125	K
140	L
150	M
160	N
170	P
180	Q
200	R
250	S
300	T
350	U
400	V
450	W
500	Y
Special length	X

Insert shape

Included angle

35°	V
55°	D
75°	E
80°	C
86°	M
55°	K
82°	B
85°	A

Other shapes

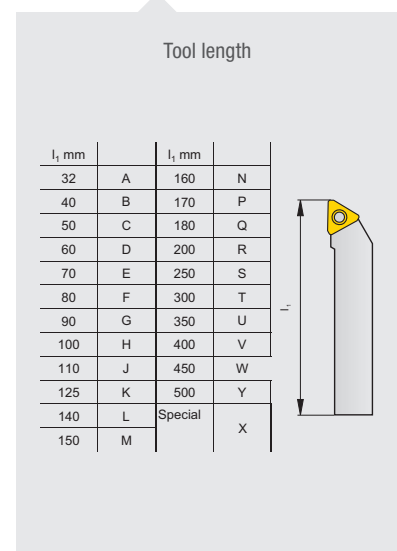
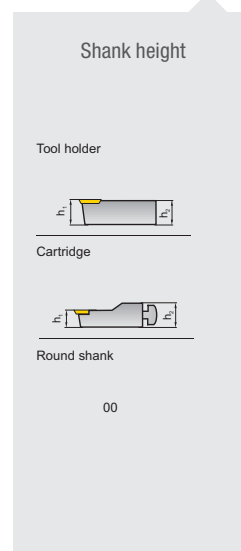
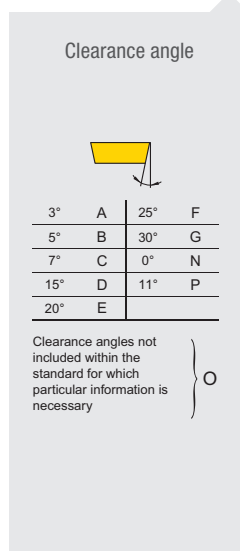
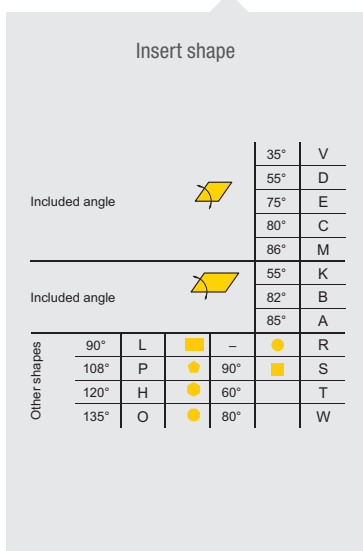
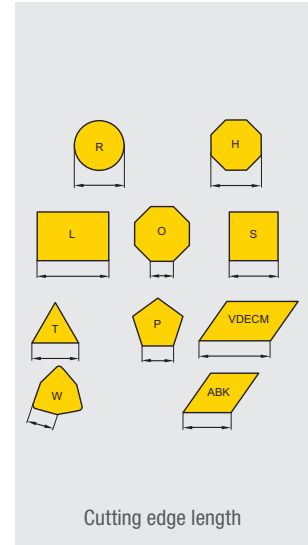
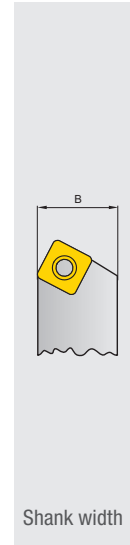
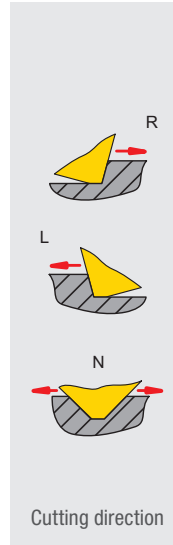
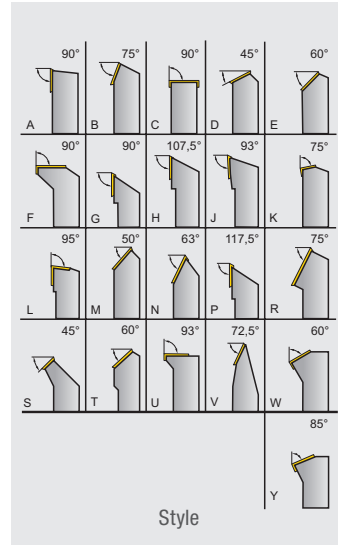
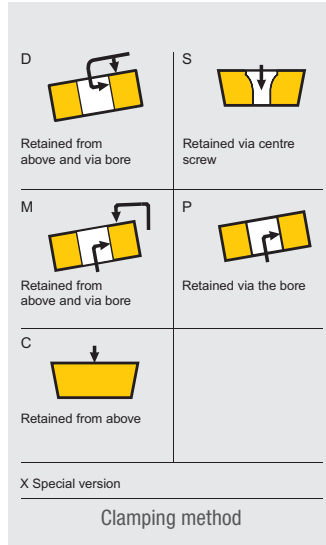
90°	L	—	●	R	
108°	P	●	90°	■	S
120°	H	●	60°	■	T
135°	O	●	80°	■	W

Clearance angle

3°	A	25°	F
5°	B	30°	G
7°	C	0°	N
15°	D	11°	P
20°	E		

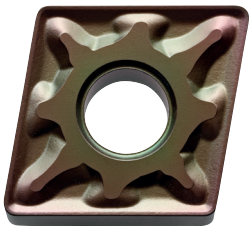
Clearance angles not included within the standard for which particular information is necessary

NL ISO Wisselplaatouder uitwendig draaien
FR Porte-plaquette ISO tournage extérieur
ES Portaplaquita ISO torneado exterior
DE ISO Klemmhalter außen drehen





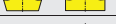
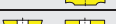
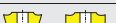
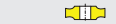
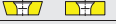
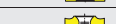
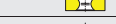
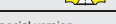
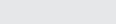
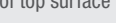
NL ISO Wisselplatten
FR Plaquettes ISO
ES Plaquitas ISO
DE ISO Wendeplatten



Included angle	35°	V	
	55°	D	
	75°	E	
	80°	C	
	86°	M	
Included angle	55°	K	
	82°	B	
	85°	A	
Other shapes		90°	L
		108°	P
		120°	H
		135°	O
		—	R
		90°	S
		60°	T
		80°	W
Insert shape			

3°	A	25°	F
5°	B	30°	G
7°	C	0°	N
15°	D	11°	P
20°	E		
Clearance angles not included within the standard for which particular information is necessary			
O			
Clearance angle			

	d ±	m ±	s ±
A	0,025	0,005	0,025
F	0,013	0,005	0,025
C	0,025	0,013	0,025
H	0,013	0,013	0,025
E	0,025	0,025	0,025
G	0,025	0,025	0,13
J	0,05-0,15°	0,005	0,025
K	0,05-0,15°	0,013	0,025
L	0,05-0,15°	0,025	0,025
M	0,05-0,15°	0,08-0,20	0,13
N	0,05-0,15°	0,08-0,20	0,025
U	0,08-0,25°	0,13-0,38	0,13
Tolerances			

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version
Form of top surface	

d mm			
	06	16	
	08	20	
	10	25	
	12	32	
mm	Inch	mm	mm
06	5/32	3,96	03
09	7/32	5,56	05
11	1/4	6,35	06
16	3/8	9,52	09
22	1/2	12,7	12
27	5/8	15,8	15
33	3/4	19,0	19
44	1	25,4	25
Cutting edge length			

Inch	mm	Index
1/16	1,59	01
3/32	2,38	02
1/8	3,18	03
5/32	3,97	T3
3/16	4,76	04
7/32	5,56	05
1/4	6,35	06
5/16	7,94	07
3/8	9,52	09
Insert thickness		

Code	Corner radius mm
00	≤ 0,05
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
24	2,4
32	3,2
Corner radius	

C N M G 12 04 08

NL Draadsnijden
FR Filetage
ES Roscar
DE Gewindedrehen

 <table border="1"> <thead> <tr> <th>mm</th> <th>Inch</th> <th>mm</th> </tr> </thead> <tbody> <tr> <td>09</td> <td>7/32</td> <td>5,56</td> </tr> <tr> <td>11</td> <td>1/4</td> <td>6,35</td> </tr> <tr> <td>16</td> <td>3/8</td> <td>9,52</td> </tr> <tr> <td>22</td> <td>1/2</td> <td>12,7</td> </tr> <tr> <td>27</td> <td>5/8</td> <td>15,8</td> </tr> </tbody> </table> Insert size	mm	Inch	mm	09	7/32	5,56	11	1/4	6,35	16	3/8	9,52	22	1/2	12,7	27	5/8	15,8	<table border="1"> <tr> <td>E</td> <td>External</td> </tr> <tr> <td>I</td> <td>Internal</td> </tr> <tr> <td>EI</td> <td>Ex- & Internal</td> </tr> </table> Type of Insert	E	External	I	Internal	EI	Ex- & Internal	<table border="1"> <tr> <td>R</td> <td>Right Hand</td> </tr> <tr> <td>L</td> <td>Left Hand</td> </tr> </table> RH/LH Insert	R	Right Hand	L	Left Hand	<table border="1"> <thead> <tr> <th colspan="3">Full Profile - Pitch Range</th> </tr> <tr> <th>mm</th> <th colspan="2">tpi</th> </tr> </thead> <tbody> <tr> <td>0.35-25.0</td> <td colspan="2">72-1</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="3">Partial Profile - Pitch Range</th> </tr> <tr> <th></th> <th>mm</th> <th>tpi</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>0.5-1.5</td> <td>48-16</td> </tr> <tr> <td>AG</td> <td>0.5-3.0</td> <td>48-8</td> </tr> <tr> <td>G</td> <td>1.75-3.0</td> <td>14-8</td> </tr> <tr> <td>N</td> <td>3.5-5.0</td> <td>7-5</td> </tr> </tbody> </table> Pitch	Full Profile - Pitch Range			mm	tpi		0.35-25.0	72-1		Partial Profile - Pitch Range				mm	tpi	A	0.5-1.5	48-16	AG	0.5-3.0	48-8	G	1.75-3.0	14-8	N	3.5-5.0	7-5	<table border="1"> <thead> <tr> <th colspan="2">Partial Profile</th> </tr> </thead> <tbody> <tr> <td>60°</td> <td>60° Partial profile</td> </tr> <tr> <td>55°</td> <td>55° Partial profile</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Full Profile</th> </tr> </thead> <tbody> <tr> <td>ISO</td> <td>ISO Metric</td> </tr> <tr> <td>UN</td> <td>American UN</td> </tr> <tr> <td>W</td> <td>Whitworth BSW/BSP</td> </tr> <tr> <td>TR</td> <td>Trapez</td> </tr> </tbody> </table> Thread Standard	Partial Profile		60°	60° Partial profile	55°	55° Partial profile	Full Profile		ISO	ISO Metric	UN	American UN	W	Whitworth BSW/BSP	TR	Trapez	<table border="1"> <tr> <td>B</td> <td>With chipbreaker</td> </tr> <tr> <td>-</td> <td>Without</td> </tr> </table> Chipbreaker	B	With chipbreaker	-	Without
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B	With chipbreaker																																																																															
-	Without																																																																															

16

E

R

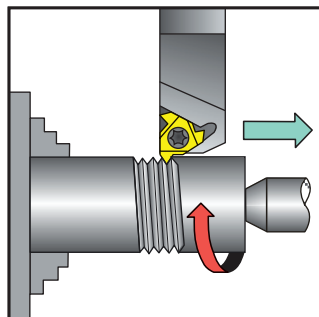
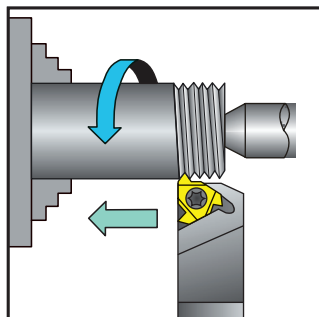
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ISO

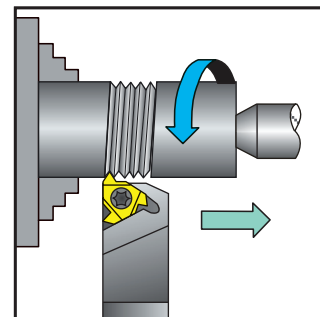
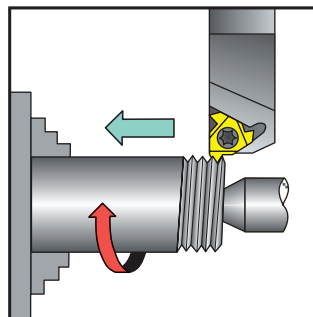
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NL Schroefdraadsnij methodes
FR Méthodes de filetage en tournage
ES Métodos de torneado de roscas
DE Gewindedrehverfahren

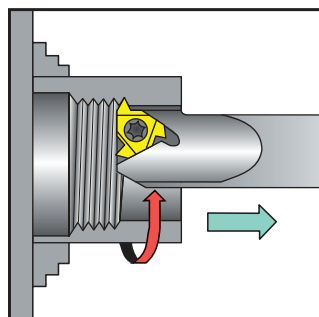
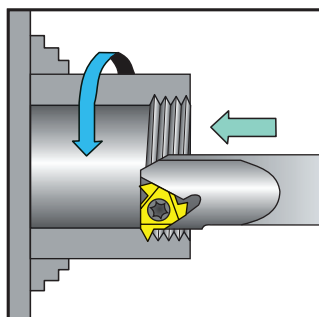
External RH Thread



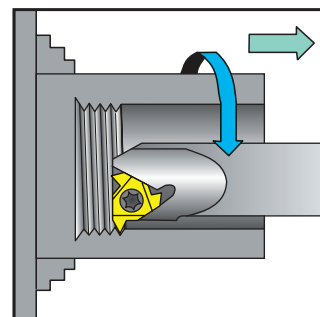
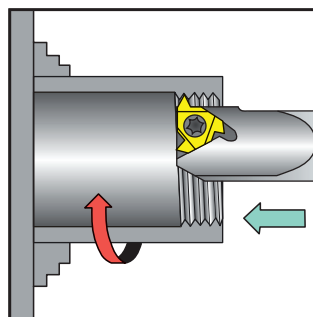
External LH Thread



Internal RH Thread



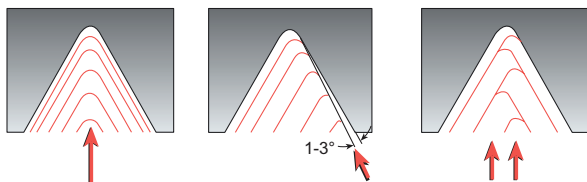
Internal LH Thread



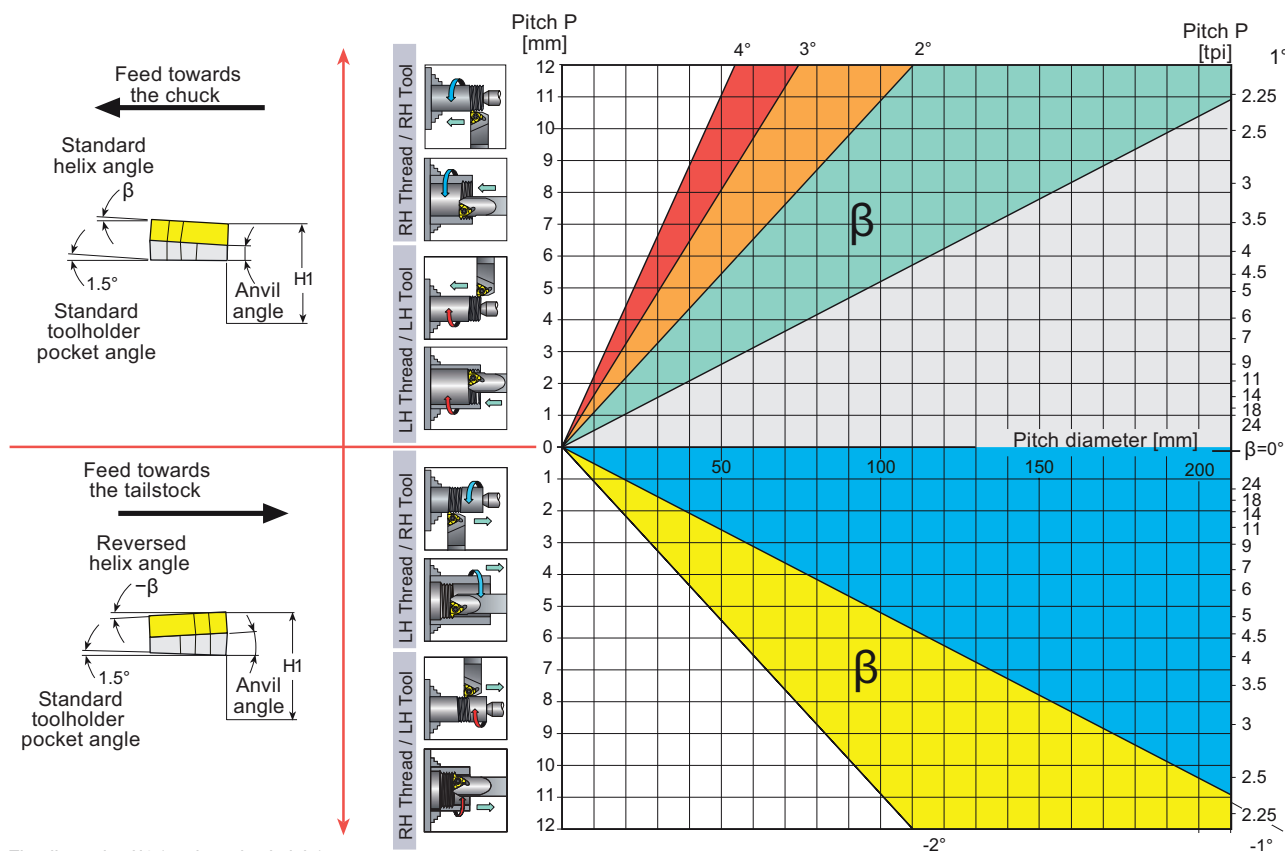


NL Invoer methoden
FR Méthode angle d'attaque
ES Métodos de ataque de la rosca
DE Gewindegstellverfahren

Radial Infeed Flank Infeed (modified) Alternate Flank Infeed



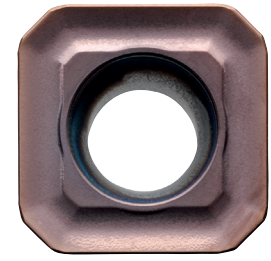
NL Schroefdraadhelingshoek diagram
FR Diagramme de l'angle d'hélice
ES Diagrama del ángulo de hélice
DE Teilungswinkel Diagramm



NL Onderlegplaten
FR Sous-plaquettes
ES Placa base
DE Unterlegplatten

Resultant Helix Angle		β Holder	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°
Insert Size	L mm		Ordering Code						
IC					Standard				
3/8"	16	ER / IL	743980170	743980175	743980165	74398180	-	743980190	743980195
		EL / IR	743980265	743980270	743980260	743980275	-	743980280	743980285
1/2"	22	ER / IL	743980205	743980210	743980200	743980215	-	743980220	743980225
		EL / IR	743980295	743980300	743980290	743980305	-	743980310	743980315
3/8" Groove	16	ER / IL	-	-	-	-	743980400	-	-
		EL / IR	-	-	-	-	743980500	-	-

NL ISO Wisselplaten
FR Plaquettes ISO
ES Plaquitas ISO
DE ISO Wendeplatten



A 85°
B 82°
K 55°

H 120°

L 90°

O 135°

P 108°

C 80°
D 55°
E 75°
M 86°
V 35°

R -

S 90°

T 60°

W 80°

X Special shapes

Insert shape

α

A 3°
B 5°
C 7°
D 15°
E 20°
F 25°
G 30°
N 0°
P 11°
O Special version

Clearance angle

	d (mm)	m (mm)	s (mm)	U=6,35/9,52	U=12,7	U=15,8/19,05
A	.025	.005	.025	•	•	•
C	.025	.013	.025	•	•	•
E	.025	.025	.025	•	•	•
F	.013	.005	.025	•	•	•
G	.025	.025	.13	•	•	•
H	.013	.013	.025	•	•	•
J	.08	.005	.025	•	•	•
K	.05	.005	.025	•	•	•
M	.08	.013	.025	•	•	•
N	.10	.005	.025	•	•	•
O	.05	.013	.025	•	•	•
P	.08	.013	.025	•	•	•
Q	.10	.013	.025	•	•	•
R	.05	.005	.025	•	•	•
S	.08	.013	.025	•	•	•
T	.10	.013	.025	•	•	•
U	.13	.020	.13	•	•	•
V	.18	.27	.13	•	•	•

Tolerances

A F G M N Q R T U W

X Special shapes

Form of top surface

d (mm)	A	T/V	C/S	H	L	R	W	O
5.00	-	-	-	-	05	-	-	-
5.56	-	09	05	-	08	-	03	-
6.00	-	-	-	-	-	06	-	-
6.35	-	11	06	03	10	-	04	02
6.65	10	-	-	-	-	-	-	-
7.94	-	-	07	-	-	-	-	-
8.00	-	-	-	-	-	08	-	-
9.00	-	-	-	-	-	-	-	-
9.52	-	16	09	05	15	-	06	04
9.57	15	-	-	-	-	-	-	-
10.00	-	-	-	-	-	-	-	-
12.00	-	-	-	-	-	-	-	-
12.70	22	12	07	20	-	08	05	-
15.87	27	15	09	-	-	-	10	06
16.00	-	-	-	-	-	16	-	-
16.74	-	-	-	-	-	-	-	-
19.05	33	19	11	-	-	-	13	07
20.00	-	-	-	-	-	-	-	-

Cutting edge length

s (mm)
01 1.59
11 1.98
02 2.38
03 3.18
T3 3.97
04 4.76
05 5.56
06 6.35
07 7.94
09 9.52

Insert thickness

1st sign	2nd sign
A 45°	A 3°
D 60°	B 5°
E 75°	C 7°
F 85°	D 15°
P 90°	E 20°
Z Others	F 25°
	G 30°
	N 0°
	P 11°
	Z Others

Radius	r (mm)
M0°	
02	0.2
04	0.4
08	0.8
12	1.2

Facet corner radius

1st sign	2nd sign
F Sharp	R
E Honed	L
S Chamfered and honed	N
T Chamfered	

Cutting edge Cutting direction

S

E

H

T

12

03

AE

SN



NL Slijtage soorten
FR Types d'usure
ES Tipos de desgaste
DE Verschleißarten

	Built-up edge (Adhesive wear)	
	Notching (Adhesive/Mechanic)	
	Crater (Chemical wear)	
	Flank wear (Abrasive wear)	
	Plastic deformation (Thermal wear)	
	Thermal cracks (Thermal wear)	
	Breakage (Mechanic wear)	

NL Maatregelen bij draai problemen
 FR Problèmes de tournage et solutions
 ES Problemas de torneado y soluciones
 DE Maßnahmen bei Drehproblemen

Type of problem													
Build up edge	Notching	Cratering	Flank wear	Plastic deformation	Breakage	Edge chipping	Surface quality	Vibration	Formation of burrs and chips	Long chips (tangled swarf)	Short chips (fragmented chips)	Corrective measures	
↑	↓	↓	↓	↓			↑	↓				Cutting speed	Cutting values
			■							↑	↓	Feed rate	
		↓				↓			↓			Feed - center area	
↓		↓	■	■		↑		■	↓	↓		Chip groove	Selection of Inserts
			↑	↑		↑			↓			Corner radius	
		↑	↑	↑	↓	↓						Cutting material	
			■	■	■	■	■					Clamping of tool	General criteria
			■	■	■	■	■					Clamping of workpiece	
□			□	□			□		□	□		Coolant	



Raise, increase



Avoid, reduce



Check, optimize



Use



NL Maatregelen bij freesproblemen
 FR Problèmes de fraisage et solutions
 ES Problemas de fresado y soluciones
 DE Maßnahmen bei Fräsproblemen

Type of problem											Corrective measures
Build up edge	Notching	Cratering	Flank wear	Plastic deformation	Thermal cracks	Breakage	Edge chipping	Bad workpiece surface	Chattering vibration	Edge chipping on the workpiece	
↑	↓	↓	↓	↓	↓		↑	↑	■		Cutting speed
↑	↓	↓	↑	↓	↓	↓	↓	↓	■		Feed rate per tooth
	↑				■	↑	↑				Toughness of cutting material
		↑	↑	↑							Wear resistance of cutting material
■	↓				↓				↓	↓	Approach angle
↑	■			↑		■	■		↑		Rake angle
■	↑						↑	↓		↓	Cutting edge facet
						↑	↑	↑			Stability
								↑	↑		Precision of axial & radial run-out
			■	■		■	■			■	Wear of cutting edge
↑	↑	↑		■	↑			■			Cooling, chipremoval
	■					■	■	■	■	↓	Dept of cut

↑ Raise, increase

↓ Lower, decrease

■ Check, optimize